



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**

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Update

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Formal Review

Date Submitted _____

SECTION I - Identification

Working Title: Data Architect

Department: Transportation

Job Code Number: 151517

Division & Bureau: Information Services
Division

Job Code Title: Computer Systems Analyst

Section & Unit: Systems/Operations

Pay Band: 7

Work Address: 2701 Prospect Avenue
Helena, MT 59620

Position Number: 81013

Phone: (406) 444-6200

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FLSA Exempt

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FLSA Non-Exempt

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Non-Union

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MPEA

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Blue Collar

Profile Completed By: Kevin Kauska

Work Phone: 444-6274

Work Unit Mission Statement or Functional Description:

The Information Services Division (ISD) provides a full range of services for the Montana Department of Transportation (MDT). The bureaus within the division plan and set policy, and coordinate, design, install and maintain the department's information technology infrastructure, including network management, server systems administration, computer systems and database administration, applications development and maintenance, integrated systems development, Internet and Intranet development, data security & disaster recovery services, geospatial information systems (GIS), global positioning systems (GPS), and roadway information collection. ISD provides user support, training, imaging and duplication services, IT research and development, internal budgeting, procurement contract administration, and project management. The division includes the MDT Duplicating Services Section.

Describe the Job's Overall Purpose:

The Data Architect works closely with business and technology counterparts to understand the enterprise data and the impact on the application portfolio, security, operating system, and database

design. This position develops and maintains the enterprise application data model and is able to demonstrate the impact of new strategy implementations including, where necessary, the incorporation of data models from other State agencies. Develops and maintains the business case and roadmap (project plan and interim architectures) for both the Oracle (primary) and SQL (secondary) database structures ensuring their alignment with the overall application portfolio and OS platforms. Involved in exploring and analyzing alternative database structures, develops, documents, and presents information to build consensus amongst business and technology counterparts regarding the enterprise data architecture; providing thought leadership on data architecture and conducting technical research to stay abreast of trends, points of view and migration strategies that will improve the business or data technology landscape at MDT.

SECTION II - Major Duties or Responsibilities	% of Time
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A.	<p>Enterprise Data Analysis</p> <p>This position is the Information Services Division's primary application data manager. This individual will gain and share knowledge regarding the inter-relationships of all application data supported by MDT ISD primarily through data models and/or process models as necessary. He/she will work with ISD Applications personnel, the Enterprise Architect and the appropriate systems personnel as necessary to ensure the data architecture design is adhered to in the applications and technology architectures. He/she will share such information throughout MDT and as appropriate with other State Agencies for collaborative efforts. Specific duties will include independently working with functional and business units to identify all system related data; working with the Information Security team to ensure proper safeguards, data security models and authentication methods are in place; working with the Systems/Operations staff on identifying any potential data architecture impacts; work with the defined data architecture team to ensure congruity in the overall Enterprise architecture; and implement strategic data initiatives. The incumbent will also develop appropriate level data diagrams to support Enterprise information understanding.</p> <ul style="list-style-type: none"> • Develops and maintains an Enterprise Data Architecture that articulates the principles, blueprints and standards, across the data domains of Transaction, Interaction and Analytic, which are used in the deployment of technology solutions for MDT/ISD Customers • Develops and maintains the Enterprise Data Model (EDM) to serve as both the strategic and tactical planning vehicles to manage enterprise data; working closely with business data owners • Develops and maintains a data dictionary – standardizing data names and definitions • Participates in data design and analysis activities and conducts appropriate technical data design reviews at various stages during the System Development Life Cycle (SDLC) • Participates in the review process for system design specifications, process models, data architecture and/or data flow diagrams • Ensures that the system and software architectures properly addresses persistence • Works with applications project teams to adopt a strong data reconciliation process concerning the replication of data that includes defining reconciliation architecture • Looks across multiple applications to determine options and best strategies to connect systems together to reduce data duplication • Involved in identifying the desktop modeling tools and assisting in their installation as needed • Identifies vital information to business processes for determining disaster recovery, verification and infrastructure requirements • Identifies sensitive information and evaluates our methods of handling that data 	70%
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- Identifies and recommends specific infrastructure initiatives to further enhance the Enterprise Data Architecture Plan, aligning with the overall MDT business direction and ISD strategies
- Builds an integrated data vision
- Recommends data policy including improvements to data governance processes and creates data governance quality processes
- Participates with ISD staff in the analysis and selection of technology acquisitions, ensuring that new products conform and support the overall Enterprise Data Architecture strategy.
- Guides, educates and mentors the Data Architecture Strategy directives, principles and standards to individuals who play data-related roles in the Agency (Business Analysts and applications development teams)
- Provides consulting to business managers/business IT liaisons as well as business partners in defining data architecture to support new and on-going projects
- Creates and delivers presentations, communicating technical and highly complex information to management and public groups
- Collaborates with outside communities of interest; researches trends and identifies opportunities with other data governance organizations.

B. Database Administration Support

30%

This position is a key resource for bringing the enterprise data implications forward during Database structure analysis; preferred database platform discussions for a given application; and methodology for upgrade and/or migration planning. As such, the incumbent will influence the enterprise design, integration and maintenance of enterprise databases (Oracle, SQL and other as appropriate) to meet the business needs of MDT.

Database Systems Analysis

- Participates in resolving any application performance issues relating to database
- Participates in database design and optimization tasks
- Uses data modeling software to analyze the most appropriate ways to store, organize, use and present data in a database structure
- Provides trouble shooting assistance to assigned development project team database analyst resource
- Participates in strategic database strategy direction recommendations and decisions
- Participates in the exploration of options and alternatives for other data stores/databases that should be further exploited in a division-wide POC

Database Knowledge

- Stays current on database products and their offerings including awareness of capabilities, limitations, licensing costs, releases, etc.
- Evaluates and understands all features and functions of currently installed products/releases.

Database Security

- Assists in the development of policies and procedures necessary to ensure the security and integrity of enterprise databases and other data stores
- Participates in the design and implementation of database security models
- Coordinates security model decisions for user access levels for each segment of the database

Database Projects

- Supports the efforts for major database release level installations and/or migrations
- Shares features and functions knowledge with applications personnel as needed (i.e. when changes occur) ensuring changes/differences are identified
- Works as part of a team to develop plans and complete the integration of data from old systems into new systems.

Other

- Supports Systems/Operations in exploring and analyzing the impacts to MDT databases made by new application software (BI, GIS, etc.) or other data related technologies
- Functions as a member of the strategic direction committee; - helps define vision, identifies timelines, goals that would insure the implementation of all approved technology initiatives

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1. ***The following duties and/or specific tasks listed under section II above are considered “essential functions” because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):***

Duties A and B: Enterprise Data Analysis and Database Administration Support.

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Light lifting (less than 10 lbs.)
- Carry light items (papers, books, laptop)
- Remaining seated for extended periods of time, with occasional walking; standing; bending
- Operating a personal computer
- Effective, professional communicating in writing, in person and over the phone
- Limited travel around the Helena area and occasional district visits

MENTAL

- Mediating conflicts between stakeholders, vendors, and technologists
- Ability to multi-task
- Conduct research
- Comparing data
- Compiling information
- Analyzing – inductive and deductive reasoning
- Synthesizing
- Making decisions in a timely manner to ensure projects are not delayed
- Coordinating
- Negotiating
- Instructing
- Dealing with the internal business users at all levels
- Demands for accuracy in all aspects of work
- Creative problem solving
- Relationship builder – listening, responsiveness, trust
- Dealing with agency business users at all levels
- Dealing with cross-agency users and SITSD at all levels
- Change Agent/Catalyst

2. Does this position supervise others? ☐ Yes ☒ No

3. Attach an Organizational Chart.

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE

Specific knowledge related to data modeling, data governance, and data dictionaries including principles and standards across the data domains of Transaction, Interaction and Analytic, which are used in the deployment of technology solutions for MDT/ISD Customers. Expanded knowledge or experience with computer operating systems (both server and PC) specific to MDT (specifically Linux, Windows 2008, Windows 7) and/or Unix; knowledge of the theories and developmental applications of computer science including systems development, implementation and management – SDLC; Expanded knowledge of Oracle RDBMS and related tools, a thorough knowledge of SQL database; understanding of database from both developer and systems view; and security understanding (Active Directory and Oracle). A broad knowledge of the information technology field, leadership techniques, mentoring methods, organizational structure, group management, risk management and strategic opportunities and direction.

SKILLS

Skill in data management and specification; program planning and implementation; negotiation and mediation; problem identification, analysis and solution identification; listening, trust building; and developing approaches to computer system issues with significant impact on agency business processes. Must manage complex and varied data administration projects; develop project plans; and use various computer hardware, network, database, and data modeling tools, single and multiple-user computer systems, remote communication devices; Must have excellent technical, conceptual, analytical, problem-solving, and technical project management skills in order to interact effectively with the full spectrum of contacts on an ongoing basis and the ability to work under demanding deadlines; act independently, operating with only general direction. Must use judgment and decisiveness and have the ability to act as a Catalyst and Change Agent. Development and implementation of standards, policies and procedures, discern and recommend appropriate information processes and technology options, challenge the status quo.

COMPETENCIES

Continuous learning and self-development; demonstrates team leadership; is relied on by others as a valid resource for information; communicates effectively with internal divisional and external (internal to the agency) customers/peers. Assumes responsibility and is given the authority to complete higher level activities with general supervision; anticipates potential problems; conflict resolution within a team environment; data management; trend analysis; situational awareness within an IT environment. Provide mentoring and leadership to division personnel regarding data; communicates effectively with external and/or the larger state customers/peers.

Behaviors required to perform these duties:

See MDT Core Behaviors

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|---|--|
| <input type="checkbox"/> No education required | <input type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent | <input checked="" type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree |

Please specify the acceptable fields of study:

Acceptable: BA/BS Computer Science or related degree

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|---|---|
| <input type="checkbox"/> No prior experience required | <input type="checkbox"/> 3 years |
| <input type="checkbox"/> 1 year | <input checked="" type="checkbox"/> 4 years |
| <input type="checkbox"/> 2 years | <input type="checkbox"/> 5 or more years |

Other specific experience:

Four (4) years of related IT experience, two (2) or more of those years should be focused on Data Architecture. The IT experience includes in-depth knowledge of application development technologies, tools, and methodologies; specific experience in business analysis from the data perspective; and experience with blueprinting and developing conceptual, logical and physical data models at the enterprise level. Proven ability to provide technical leadership and command respect at all levels of the organization is a must. Other experience requested is a demonstrated ability to translate highly complex and ambiguous problems into actionable components. Certified Data Management Professional (CDMP) certification and Oracle and/or SQL RDBMS experience are desirable.

Alternative Qualifications:

This agency will accept alternative methods of obtaining necessary qualifications.

- ☒ Yes ☐ No

Alternative qualifications include:

- 1) Up to four years of additional related work experience may be substituted for the four year degree requirement although it would be treated as a 'non-related' BA/BS degree. Thirty (30) completed and passed semester credits (or the equivalent in quarter credits) from an accredited college or university will be considered as one year of college.
- 2) In replacement of the related Bachelor's Degree requirement, MDT would accept:
 - a non-related BA/BS degree and a minimum of 8 years IT related experience as defined above
OR
 - an AA/AS Degree in Computer Science or related degree and a minimum of 6 years IT related experience as defined above

SECTION IV – Other Important Job Information

- | | |
|---|---|
| <input checked="" type="checkbox"/> Fingerprint check | <input type="checkbox"/> Valid driver's license |
| <input checked="" type="checkbox"/> Background check | <input type="checkbox"/> Other; Describe |

Other information including working conditions such as shifts, lifting requirements, travel or hours.

Responsibilities require the incumbent to work within predetermined timeframes to meet critical deadlines. The predominate work is performed in an office setting during normal working hours and often requires the incumbent to sit for extended periods of time while working at a desk and computer. Limited day and overnight travel may be required to gather information from district office locations.

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: Data Architect I or II _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: Mike Bousliman _____ Title: Administrator, Information Services Division _

Signature: _____ Date: _____

Department Designee:

Brent Rabe/Designee Human Resources Officer
Human Resources Division

Signature: _____ Date: _____